

Claims:

1. A method for lowering the viscosity of a fat based mixture comprising solids and fat that have been previously refined to a powdery mass, and with the solids being
5 not significantly coated with the fat, characterized in that the powdery mass is submitted to elongational flow effective, as such, to provide breaking up of the agglomerates and intimate interactions of the solids with the fat thereby resulting in the production of a pasty mass with coating of the solids with the fat.
- 10 2. Method according to claim 1, wherein the predominant elongational flow is achieved by forcing a flow of the fat based mixture through a plurality of flow constrictions positioned in parallel and/or series relative to said flow.
3. Method according to claim 2, wherein the elongational flow is achieved by
15 forcing under pressure and on a continuous manner the powdery mass through a plurality of holes of at least one die plate.
4. Method according to any of claims 1 to 3, wherein the at least one die plate comprises a plurality of small size holes having a size of from 0.5 to 20 mm.
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5. Method according to claim 4, wherein the holes form a tapered, parallel, flared profile or any combinations thereof, as viewed from the inlet to the outlet of the holes.
- 25 6. Method according to claim 5, wherein the at least one die plate comprises of from 1 to 200 holes.
7. Method according to any of claims 4 to 6 wherein there is provided at least two separate die plates positioned in series in a barrel for serial passage of the product
30 mixture through the die plates.
8. Method according to any of claims 3 to 7, wherein forcing of the mixture through the at least one die plate is carried out by the use of pressure generating means exerting a positive pressure upstream the die plate.

9. Method according to claim 8, wherein the pressure generating means is a gear pump, a lobe pump, a piston pump or an extruder.
- 5 10. Method according to claim 9, wherein solid ingredients are added and mixed with fat and optionally emulsified in a mixer prior to being pressurized in the pressure generating means.
11. Method according to any of the preceding claims, wherein the average particle
10 size of the solids of the refined fat based mixture has been reduced to less than 50 microns.
12. Method according to any of the preceding claims, wherein the fat based mixture essentially consists of refined chocolate or chocolate-like powder compound.
- 15 13. Method according to any of the preceding claims, wherein the elongational flow is carried out at the start of a liquefying process before shearing of the resulting fat based mixture in a shear mixer such as a conche so as to significantly decrease the subsequent shearing time and/or to further reduce the viscosity at the final
20 desired level.
14. Method according to claim 13, wherein the final mixing is carried out in an in-line mixer to complete the addition of fat and/or emulsifier.
- 25 15. Method according to claim 13, wherein the final mixing is carried out in a batch type conche.
16. Device for reducing viscosity of a fat based mixture comprising solids and fat that have been refined to a powdery mass characterized in that it comprises a die
30 assembly comprising at least one die plate with a plurality of holes and a pressure generating device to exert a pressure on the mixture located upstream of the die assembly to force the powdery mass through the holes and thereby creates an elongational flow effective to achieve breaking up of the agglomerates and intimate interactions of the solids with the fat.